



Janet Lewis, Chief Electrical Inspector

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Electrical code issues and answers.

● Oldest Electrician?

When the renewal for the general electrical journeyman certificate arrived at central office for Carson M. Akre it turned a few heads. Do we have a Y2K problem? You see, the information the computer generated showed that Mr. Akre, whose nickname is Carl, was born June 27, 1900. The licensing representative was a little taken aback to say the least. If this date is correct, the man is ninety-nine. Yes, count them, 99 years old! The information was confirmed. Dene Koons, the Electrical Field Supervisor for the Tri-Cities and Walla Walla service locations, went to visit Carl Akre.

Dene found Carl to be a very young spirited and patriotic 99-year-old who wants to keep his electrical certificate just in case his country would call on him. He is also an inventor and now an author. He is keeping some of his inventions a secret but says you can find out about them when you read his autobiography. The book is written and Carl is looking for a publisher.

In 1916, Carson M. (Carl) Akre went to work as an electrical trainee for Frederick and Nelson in Seattle. In 1917 he was drafted into the United States Army. However the armistice was signed before he was called into service. In that same year he moved to Spokane and began studying to be a photographer. He said he was living in Spokane when the downtown streets were first lighted. He told Dene the power, which was DC, came from a Washington Water Power dam that was located where the Monroe Street Bridge now crosses the Spokane River. He lived in Spokane until 1921.

In 1921, Carl enlisted in the United States Marine Corps and served as an orderly for Admiral Nimitz aboard the USS California. In 1922, he began taking ICS courses for electricians. In 1924, after being discharged from the service he went to work as an electrician in Los Angeles for the Shell Oil Company. He worked there until the depression hit. He took a cut in pay when he moved back to the State of Washington in 1930 and went to work as an electrician's helper at the U.S. Veterans Administration Hospital in Walla Walla. It is now the General Wainwright Veterans Hospital. He went to night school and also worked as an engineer and draftsman at the facility. Carl retired from the hospital in 1965 and now brags that he has been retired just about as long as he worked. In 1973, Carl grandfathered his many years of experience and became a Washington State certified electrician.

By the way Carl still lives at home and drives his car, although he admits that he doesn't venture out past dark these days. He also bought his first computer in 1992 and has been on it almost every day since.

Congratulations Carl! We at the Department of Labor and Industries are proud to salute you as the state's oldest known certified electrician.

● Conduit Seals for On-site Sewage Disposal Systems

The department has received several questions recently regarding the type of sealing fittings approved by the department for on-site sewage systems. When the word "approved" appears in rules or statutes, the department must determine the acceptability of the products and installation methods used. WAC 296-46-50002(1)(e) requires an "approved" sealing fitting be installed to prevent the migration of corrosive gases or vapors from the pumping chamber for residential and other on-site systems with residential loading characteristics.

Most sealing installations have been made using "explosion-proof" type sealing fittings with sealing compound, even though vented residential systems are not classified locations and do not require explosion proof fittings. Other sealing methods may be allowed to prevent the migration of gases and vapors. "Ductseal" or other sealing methods, may be allowed, provided the method of sealing has no negative effect on the conduit or wiring and is installed in a manner that prevents the migration of gases and vapors. Communication between the installer and the inspector is necessary to ensure the installation method is acceptable.

● New Service For Contractors - Internet Access To Request Inspections

The department is offering an Internet Access service to Electrical Contractors who utilize Contractor Deposit Accounts. This service will be available September 15, 1999 and is the first step to provide Internet access to our customers. The first phase is called EIRS, which is a service that will give contractors the ability to request electrical inspections on-line every day up until 9:00PM. To sign up for this service, contractors must complete an application form and sign a user contract. The application and contract will be available on the Electrical Homepage www.wa.gov/lni/electrical, or by contacting Phyllis Cooper via e-mail, tayp235@lni.wa.gov, or calling (360) 902-5252 to request a package to be mailed. The second phase for Internet access services will be called IPEP, which will allow contractors to purchase electrical permits on-line. This service will not be available for several months. We would like to thank the contractors who voluntarily participated in the EIRS pilot project for their patience and time in developing this application. We are excited about this new service and are looking forward to expanding our ability to provide access to inspection related information online.

● Battery Powered Emergency Lighting Units

Individual unit equipment for emergency illumination (egress, exit lights, etc.) is covered in NEC 700-12(e). This article has the following requirements: (1) *"Unit equipment shall be permanently fixed in place"* (2) *"The branch circuit feeding the unit equipment shall be the same branch circuit as that serving the normal lighting in the area and connected ahead of any local switches"*. The branch circuit requirements are very important. If the normal lighting circuit were to fail, the emergency lighting must come on for the safety of persons in that area. There is one exception to this requirement. *"In a separate and uninterrupted area supplied by a minimum of three normal lighting circuits, a separate branch circuit for unit equipment shall be permitted if it originates from the same panelboard as that of the normal lighting circuits and is provided with a lock-on feature."*

● MC and AC Cable -- Anti-Short Bushings.

NEC 334-12 says that the fittings used to terminate **Type MC** cable to boxes or other equipment must be listed and identified for such use. There is no requirement in the NEC for anti-short bushings to be installed unless the manufacturer's instructions specifically require their installation. Some manufacturers supply anti-short bushings as a courtesy, but do not specifically require their installation.

NEC 333-9 requires that all terminations of **Type AC** cable protect the wires in the cable from abrasion and that an insulating bushing or its equivalent be installed. The insulating bushing must be visible for inspection after the installation is complete.

● Requirements for Portable Generator Systems.

WAC 296-46-702 requires optional standby systems supplied by portable generators to meet the requirements of NEC 702. NEC 702-6 requires that the transfer equipment for optional standby loads to be suitable for the intended use. This requirement is satisfied by either providing listed transfer equipment or a multi-position switch/transfer mechanism that has a reference label stating the device satisfies the requirements of NEC 702. NEC 702-8 now requires that a sign be provided at the service-entrance equipment indicating the type and location of on-site optional standby power sources.

The method of disconnection of the generator circuit is not addressed in NEC 702. Since a portable generator is temporary in nature, the requirements for disconnecting are found in NEC 305-4(e). A suitable disconnecting switch or plug connector is required to disconnect all ungrounded conductors of the temporary generator circuit. If a plug connector is used as the disconnecting means, NEC 410-56(g) requires the plug connector to be constructed so that prongs, pins, or blades are not energized until inserted into an energized receptacle. This requirement means that a receptacle mounted on a building for receiving power from a portable generator must be a male receptacle.

● What is the Minimum Separation for Nonmetallic Boxes in Common Fire Rated Walls?

Box separation in common fire rated walls is not specifically addressed by the National Electrical Code. The electrical installer and inspector must verify the installation listing requirements of all device and junction boxes installed in common fire rated walls. For nonmetallic outlet boxes the UL Electrical Construction Equipment (Green) Book, for most installations, requires a minimum horizontal separation between boxes of 24". Some manufacturer's instruction/listing documents may reduce the 24" separation requirement because of the type and amount of insulation to be installed or other installation factors. **Installers should also be aware that the Uniform Building Code, adopted by most building departments, has strict requirements on electrical box installations in common fire rated walls and ceilings.**